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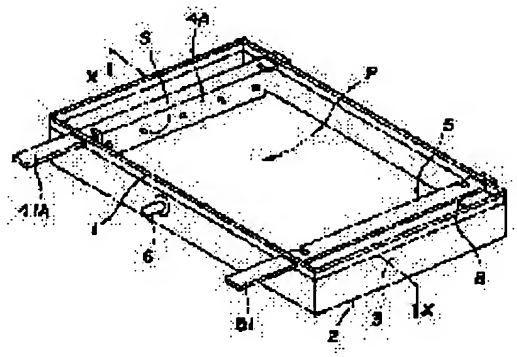
(54) FLAT TYPE FLUORESCENT LAMP

(57)Abstract:

PURPOSE: To provide a flat type fluorescent lamp in which no flicker is caused, and the luminance of the light emitted from the flat surface is uniformed.

CONSTITUTION: In a flat type fluorescent lamp having a flat discharge space P sealed by an upper plate member 1, a lower plate member, and a frame spacer member 3, a pair of slender positive electrode 4A and negative electrode 5 arranged opposite to each other in the flat discharge space P, and a phosphor 7 applied to the inner surfaces of the upper plate member 1 and the lower plate members 2, a projection part S is formed on the surface of the positive electrode 4A opposed to the negative electrode 5. Further, the surface of the positive electrode 4A including the surface of the projection part S is oxidized. Otherwise, the surface of the positive electrode 4A except the discharge part contributing to the discharge of the projection part S is subjected to insulating treatment.



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CLAIMS

[Claim(s)]
[Claim 1] The flat-surface mold fluorescent lamp which the flat discharge space sealed by the superior lamella member, the inferior lamella member, and the frame spacing member is formed, and opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and is characterized by forming the height in the front face of said cathode and said anode plate which counters in the flat-surface mold fluorescent lamp with which it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member.
[Claim 2] The flat discharge space sealed by the superior lamella member, the inferior lamella member, and the frame spacing member is formed. In the flat-surface mold fluorescent lamp with which opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member The flat-surface mold fluorescent lamp characterized by the front face of said anode plate which a height is formed in the front face of said cathode and said anode plate which counters, and includes the front face of this height having oxidized.
[Claim 3] The flat discharge space sealed by the superior lamella member, the inferior lamella member, and the frame spacing member is formed. In the flat-surface mold fluorescent lamp with which opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member The flat-surface mold fluorescent lamp characterized by carrying out insulating processing of the front face of said anode plates other than the discharge part which a height is formed in the front face of said cathode and said anode plate which counters, and contributes to discharge of this height.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Industrial Application] This invention relates to the flat-surface mold fluorescent lamp suitably used as a back light of a liquid crystal display.
[0002]
[Description of the Prior Art] As for the back light of a color liquid crystal display, the fluorescent lamp is mainly used. As for the back light of the electrochromatic display viewfinder of a liquid crystal television or a video camera small also in it, the flat-surface mold fluorescent lamp is used from the demand of small and thin-shape-izing.
[0003] The conventional flat-surface mold fluorescent lamp is explained using drawing 6 . The flat discharge space P is formed of the frame spacing member 3 which consists of ceramics, such as forsterite, as well as the inferior lamella member 2 which consists of ceramics with which this flat-surface mold fluorescent lamp consists of soft glass, such as the superior lamella member 1 and forsterite, and the fluorescent substance is applied to the inner surface of the superior lamella member 1 and the inferior lamella member 2. In addition, the inferior lamella member 2 and the frame spacing member 3 are beforehand formed in one, and are carrying out the flat core box. And it counters in this flat discharge space P, the anode plate 4 and cathode 5 of a couple are arranged, and it connects with leads 41 and 51. In addition, in this conventional example, as shown in drawing 7 , the anode plate 4 and the lead 41 are formed in one. Although drawing 7 shows only the anode plate, it is structure with the same said of cathode. These leads 41 and 51 are airtightly fixed together, when carrying out the seal of the superior lamella member 1 and the frame spacing member 3 with low melting glass 8. 6 is the exhaust pipe remainder of the exhaust pipe used when enclosing exhaust air of the flat discharge space P, and the rare gas to the flat discharge space P. the inside of this sealed flat discharge space P -- rare gas and mercury -- or By enclosing only rare gas and carrying out discharge by the RF with the whole electrode surface between the anode plate 4 of a couple, and cathode 5 The ultraviolet rays which ultraviolet rays and rare gas which mercury vapour is excited and occur are excited, and are generated are changed into the light with the fluorescent substance applied to the inner surface of the inferior lamella member 2, and the inner surface of the superior lamella member 1, and are emitted outside as a flat-surface light.
[0004] In the anode plate 4 and cathode 5 of a couple, nonconformities, such as lowering of brightness, degradation of the starting characteristic, and generating of a flicker, arise according to causes, such as scattering of the oxide of an electrode surface, an impurity, etc., bleedoff of the impure gas which occurs from the interior of an electrode, and migration of the discharge location by the dry area of an electrode surface. For the object which prevents such nonconformity, processing of the reduction processing by cleaning washing processing, surface polish processing, hydrogen, etc., elevated-temperature gas broth processing in a vacuum, etc. is fully made as assembly pretreatment of an electrode, an electrode surface is smooth, there is neither oxidation nor dirt, and sufficient consideration is made so that the impure gas inside an electrode may also decrease as much as possible.
[0005]
[Problem(s) to be Solved by the Invention] However, in spite of performing processing mentioned above in an anode plate and cathode so that it may discharge from the long and slender whole electrode surface, the phenomenon in which the location which discharges according to an electrode surface condition moves in an electrode surface top occurs. Especially this phenomenon is hardly seen in the cathode surface which emits an electron, but appears notably in the anode plate front face which is the side which receives an electron. Consequently, a flicker occurred in the emitted light, and when brightness regularity was bad and used this flat-surface mold fluorescent lamp as a back light of a liquid crystal display, there was a problem that a flicker and brightness of a screen were not uniform.
[0006] what was made in order that this invention might solve the above troubles -- it is -- that object -- a flicker -- not generating -- in addition -- and it is in offering a flat-surface mold fluorescent lamp with the uniform brightness of the light emitted at a flat surface.

[0007]
[Means for Solving the Problem]
[Means 1] The flat discharge space where the flat-surface mold fluorescent lamp of this invention was sealed by the superior lamella member, the inferior lamella member, and the frame spacing member is formed. Opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and it is characterized by forming the height in the front face of said cathode and said anode plate which counters in the flat-surface mold fluorescent lamp with which it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member.
[Means 2] The flat discharge space where the flat-surface mold fluorescent lamp of this invention was sealed by the superior lamella member, the inferior lamella member, and the frame spacing member is formed. In the flat-surface mold fluorescent lamp with which opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member A height is formed in the front face of said cathode and said anode plate which counters, and it is characterized by the front face of said anode plate including the front face of this height having oxidized.
[Means 3] The flat discharge space where the flat-surface mold fluorescent lamp of this invention was sealed by the superior lamella member, the inferior lamella member, and the frame spacing member is formed. In the flat-surface mold fluorescent lamp with which opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member A height is formed in the front face of said cathode and said anode plate which counters, and it is characterized by carrying out insulating processing of the front face of said anode plates other than the discharge part which contributes to discharge of this height.
[0008]
[Function] By preparing a height in the front face of cathode and the anode plate which counters, the field strength at the head of a height becomes strong, and only this height head serves as a discharge part which contributes to discharge, and it is stabilized and comes to discharge. Consequently, the flat-surface mold fluorescent lamp which migration of the discharge location on the anode plate front face which is influenced in an anode plate surface state and happens will not take place, as a result a flicker does not produce is made. Moreover, by oxidizing an anode plate front face including the front face of a height in advance, and forming an oxide film, the oxide film on the front face of a height disperses in early discharge, and a height serves as a discharge part. Or a height serves as a discharge part by carrying out insulating processing of the anode plate front faces other than a height with an inorganic substance etc. By performing these processings to an anode plate front face, the field strength of the height which is a discharge part increases, and discharge is stabilized. Consequently, the flat-surface mold fluorescent lamp which migration of the discharge location on the anode plate front face which is influenced in an anode plate surface state and happens will not take place, as a result a flicker does not produce is made. Furthermore, the luminance distribution of the light emitted at a flat surface can be changed by changing the formation location of the height of the front face of an anode plate.
[0009]
[Example] Hereafter, this invention is explained to a detail based on a drawing. Drawing 1 is the perspective view which looked at the flat-surface fluorescent lamp of this invention from the superior lamella member side. In addition, the fluorescent substance applied to the inner surface of a superior lamella member so that flat discharge space, an anode plate, and cathode may appear is omitted. Drawing 2 shows the X-X sectional view of drawing 1 . Seven show a fluorescent substance among drawing. The lead with which an anode plate and 41A were connected to anode plate 4A for 4A, and S show the height formed in the front face of anode plate 4A which counters cathode 5, respectively. In addition, the same sign as drawing 6 shows the same part. A dimension is 23mmx20mmx4.7mm and the power consumption of this flat-surface mold fluorescent lamp is 0.6W. in addition, as shown in drawing 1 , in this example, anode plate 4A and lead 41A are formed in one -- it does not need to be formed in one. It mentions later for details.
[0010] Drawing 3 is the perspective view which took out only the anode plate of the flat-surface mold fluorescent lamp of this invention. Anode plate 4A and lead 41A are formed in one, and construction material consists of a Fe-nickel-Cr system alloy. And anode plate 4A is tabular [with width of face of 1.5mm, a die length / of 11mm /, and a thickness of 0.2mm]. Moreover, lead 41A is band-like [with a width of face / of 1.0mm /, and a thickness of 0.2mm], and is formed in anode plate 4A and one. In addition, an anode plate and a lead are really formed, when ****, a lead consists of a Fe-nickel-Cr system alloy mentioned above, and an anode plate joins an anode plate and a lead by spot welding etc. using refractory metals, such as Ta, Mo, nickel, SUS, and Fe. S is a conic height according to molding to the front face of anode plate 4A which counters cathode 5. In this example, five heights S are formed in the front face of anode plate 4A, and it is ********. In addition, what is necessary is just to arrange one or more pieces in a fitness location according to change of luminance distribution about the number and formation location of a projection.

[0011] Drawing 4 is the explanatory view of the modification of the height formed in the anode plate. As shown in drawing 4 (b) (b), irregularity is given to the end face of anode plate 4A which counters cathode 5, and it is considering as the height S1. Moreover, they are welding or wax ********** to the front face of anode plate 4A on which a height S2 counters cathode 5 as shown in drawing 4 (Ha). Furthermore, as shown in drawing 4 (d), the height S3 is attached in the front face of anode plate 4A which counters cathode 5 by embedding etc. The configuration of a height is not caught by configurations, such as the shape of the shape of the shape of a cylinder, a globular shape, cylindrical, and a pipe, and a triangular pyramid, and a multiple drill, but should just project. And how that did not break in the non-deer which has a building envelope in this height, and the point of a height has opened is not related. the configuration of the point of a height is merely even -- it is more more effective to be more sharp.
[0012] Drawing 5 shows the Y-Y sectional view of drawing 3 . In addition, anode plate 4A shows among drawing the condition of oxidizing or insulation processing the front face. Anode plate 4A oxidizes the front face, and oxide-film 40a is formed. The oxidation approach is attained by heat-treating electrode 4A by the inside of atmospheric air, oxygen, or the gas containing oxygen, or the humidification hydrogen middle class. In addition, although the part which an anode plate front face oxidizes is the simplest for the approach of oxidizing all anode plate front faces, it may oxidize only the anode plate side face in which only the anode plate front face which counters cathode follows the anode plate front face which counters cathode, and its front face. When an anode plate is a Fe-nickel-Cr system alloy, in high temperature processing in humidification hydrogen, chromium **** oxide-film 40a on an anode plate 4A front face, and it can do the oxide film of precise and firm chrome oxide simply. In this case, as an amount of oxides of the chrome oxide on the front face of an anode plate seen from flicker depressor effect, it is 0.03 mg/cm2. Effectiveness is small below and it is 0.03 mg/cm2. It is 0.5 mg/cm2 above. In the following range, effectiveness is dramatically large. In addition, 0.5 mg/cm2 Although it is dramatically effective above to a flicker, the problem to which dielectric breakdown by that the amount of scattering of an oxide increases and discharge becomes difficult arises. Assembly completion of the flat-surface mold fluorescent lamp is carried out using the anode plate oxidized as mentioned above. In addition, before oxidizing an anode plate, sufficient pretreatment is made, and vacuum elevated-temperature gas broth processing even with after [sufficient] oxidation treatment etc. is performed.
[0013] Although the front face of anode plate 4A of the completed flat-surface mold fluorescent lamp is covered by oxide-film 40a including the front face of Height S, the oxide film of the part which a height front face is struck by the electron and discharges disperses by switching on the light and discharging. The amount in which the oxide of an oxide film disperses at this time is a minute amount, and completely satisfactory about lowering of brightness. In addition, by oxidation treatment, if the oxide on the front face of an anode plate disperses also in a minute amount, when [special] becoming a problem, when there are many amounts of oxidation, grinding etc. may remove an oxide by the chemical approaches, such as mechanical or electrolytic polishing, etc. beforehand.
[0014] As shown in drawing 5 , anode plate 4A carries out insulating processing of except for a part in the front face in the middle of the slant face of a part for the point of Height S, and Height S, and forms insulator layer 40b. The insulating part on the front face of an anode plate insulates all anode plate front faces, or only the anode plate side face following the anode plate front face where only the anode plate front face which counters cathode counters cathode, and its front face may carry out insulating processing. the approach of forming insulator layer 40b -- aluminum 2O3 and SiO2 etc. -- after welding an inorganic substance or an inorganic substance compound by a plasma metal spray etc., applying and calcinating with a nitrocellulose solvent etc. or vapor-depositing a metal on an anode plate front face, it can attain by oxidizing the vacuum evaporationo film etc. In addition, when insulating processing of the whole anode plate surface is carried out including the front face of a height, mechanical or chemical or ** which are removed by electrical treatment, such as external discharge, such as grinding, are good in the insulator layer of the front face of the height made to discharge. [, such as electric-field polish,] Moreover, since the insulator layer is not formed in the discharge part made to discharge when bonnet insulation processing of the part made to discharge before insulating processing is carried out, it is unnecessary in clearance.
[0015] Drawing 8 is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention with which the oxide film was formed in the anode plate, and the conventional flat-surface mold fluorescent lamp. In addition, as for the anode plate used for the flat-surface mold fluorescent lamp of this invention, the height used the thing of five places and nine types [two]. It experimented using the flat-surface mold fluorescent lamp with which only five kinds of following anode plates differ.
** The flat-surface mold fluorescent lamp with which the oxide film is not formed although the height (five places) is formed in the anode plate.
** The flat-surface mold fluorescent lamp in which the oxide film of chromium was formed on all anode plate front faces including the front face of a height (five places).
** The flat-surface mold fluorescent lamp with which the oxide film is not formed although the height (nine places) is formed in the anode plate.

** The flat-surface mold fluorescent lamp in which the oxide film of chromium was formed on all anode plate front faces including the front face of a height (nine places).
** a height forms in an anode plate -- not having -- in addition -- and the flat-surface mold fluorescent lamp with which the oxide film is not formed in the front face.
In addition, since generating of a flicker tends to have taken place so that ambient temperature is high, it was performed by continuation burning within the thermostat set as 70 degrees C which is an activity maximum temperature. Moreover, the flat-surface mold fluorescent lamp has performed burning for 10 minutes in total and ordinary temperature beforehand including the object which removes the oxide film on the front face of a height contributed to discharge. After checking [hour / 6th / of the initial burning] generating of a flicker, the light was put out, after removing the flat-surface mold fluorescent lamp which a flicker generated, burning of 24 hours was performed again, after checking generating of a flicker, the light was put out, and after the experiment approach removed the flat-surface mold fluorescent lamp which a flicker generated, it performed burning of third-time degree 48 hours, and asked for the flicker incidence rate. In addition, it serves as aging for the stability of a lamp property performed in the usual process for initial burning 6 hours.
[0016] By preparing a height in the front face of cathode and the anode plate which counters, and forming an oxide film in an anode plate front face including a height front face, it is at the 6-hour burning time, and the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was able to attain 0% to the flicker incidence rate of the conventional flat-surface mold fluorescent lamp being 12.5% so that more clearly than this experimental data explanatory view. Moreover, only by preparing a height in the front face of cathode and the anode plate which counters, also in the condition that the oxide film is not formed, are at the 6-hour burning time, and although the flicker incidence rate of the conventional flat-surface mold fluorescent lamp is 12.5%, it receives. The flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was very as low as 0.5% and 1.5%, and further, in third-time burning 48 hours, the flicker incidence rate became 0%, and it has checked that sufficient effectiveness showed up.
[0017] Drawing 9 is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention with which the insulator layer was formed in the anode plate, and the conventional flat-surface mold fluorescent lamp. In addition, as for the anode plate used for the flat-surface mold fluorescent lamp of this invention, the height used the thing of five places and nine types [two]. It experimented using the flat-surface mold fluorescent lamp with which only five kinds of following anode plates differ.
** The flat-surface mold fluorescent lamp with which the insulator layer is not formed although the height (five places) is formed in the anode plate.
** It is aluminum 2O3 to all anode plate front faces other than the point of a height (five places). Flat-surface mold fluorescent lamp in which the insulator layer was formed.
** The flat-surface mold fluorescent lamp with which the insulator layer is not formed although the height (nine places) is formed in the anode plate.
** It is aluminum 2O3 to all anode plate front faces other than the point of a height (nine places). Flat-surface mold fluorescent lamp in which the insulator layer was formed.
** a height forms in an anode plate -- not having -- in addition -- and the flat-surface mold fluorescent lamp with which the insulator layer is not formed in the front face.
In addition, since generating of a flicker tends to have taken place so that ambient temperature is high, it was performed by continuation burning within the thermostat set as 70 degrees C which is an activity maximum temperature. After checking [hour / 6th / of the initial burning] generating of a flicker, the light was put out, after removing the flat-surface mold fluorescent lamp which a flicker generated, burning of 24 hours was performed again, after checking generating of a flicker, the light was put out, and after the experiment approach removed the flat-surface mold fluorescent lamp which a flicker generated, it performed burning of third-time degree 48 hours, and asked for the flicker incidence rate. In addition, it serves as aging for the stability of a lamp property performed in the usual process for initial burning 6 hours.
[0018] By preparing a height in the front face of cathode and the anode plate which counters, and forming an insulator layer in the anode plate front face except the point of a height, it is at the 6-hour burning time, and the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was able to attain 0% to the flicker incidence rate of the conventional flat-surface mold fluorescent lamp being 12.5% so that more clearly than this experimental data explanatory view. Moreover, only by preparing a height in the front face of cathode and the anode plate which counters, an insulator layer is formed, and are at the 6-hour burning time, and also in the condition [****], although the flicker incidence rate of the conventional flat-surface mold fluorescent lamp is 12.5%, it receives. The flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was very as low as 0.5% and 1.5%, and further, in third-time burning 48 hours, the flicker incidence rate became 0%, and it has checked that sufficient effectiveness showed up.

[0019] Drawing 10 is the experimental data explanatory view showing the relation between the brightness regularity in the luminescence side by the arrangement location and number of the heights, and the brightness regularity in the luminescence side of the conventional flat-surface mold lamp in the flat-surface mold fluorescent lamp of only this invention which prepared the height in cathode and the anode plate front face which counters. Drawing 11 is approximate account drawing of the measurement-of-luminance field (Field A - Field I) in a luminescence side. When a luminescence side was equally divided into nine and the brightness of the central field E was made into 100%, the rate of the brightness of each field (the field A except Field E - Field I) was shown in drawing 10 . And when the number of heights is 3-9, after it has arranged in the anode plate center section when the number of the heights formed in cathode and the anode plate front face which counters is one, it has arranged to the ends of an anode plate when the number of heights is two, and having arranged the height of ends, other heights have been arranged so that spacing of each height may become equal.

[0020] With the conventional flat-surface mold fluorescent lamp, as shown in drawing 10 , when the flat-surface mold fluorescent lamp of this invention arranged to homogeneity the projection which is the discharge location of an anode plate, the minimum value of brightness became 83.9% and it has checked that almost uniform brightness was obtained to the minimum value of brightness being 74.2% since the discharge location of an anode plate is uneven.

[0021]

[Effect of the Invention] Since the height is formed in the front face of cathode and the anode plate which counters, the flat-surface mold fluorescent lamp of this invention can maintain the stable discharge condition that migration of the discharge location on an anode plate does not take place. Furthermore, since the height is controllable in the location of arbitration, brightness regularity can be raised. moreover, the thing which the anode plate front face including the front face of a height has oxidized -- or by carrying out insulating processing of the anode plate front face except the head of a height, further further, migration of the discharge location on an anode plate will not take place, and discharge can maintain in the stable condition. Consequently, the incidence rate of a flicker can decrease remarkably and brightness regularity can consider as a good flat-surface mold fluorescent lamp.

[Translation done.]

* NOTICES *

1.This document has been translated by computer. So the translation may not reflect the original precisely.
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

TECHNICAL FIELD

[Industrial Application] This invention relates to the flat-surface mold fluorescent lamp suitably used as a back light of a liquid crystal display.

[Translation done.]

PRIOR ART

[Description of the Prior Art] As for the back light of a color liquid crystal display, the fluorescent lamp is mainly used. As for the back light of the electrochromatic display viewfinder of a liquid crystal television or a video camera small also in it, the flat-surface mold fluorescent lamp is used from the demand of small and thin-shape-izing.
[0003] The conventional flat-surface mold fluorescent lamp is explained using drawing 6 . The flat discharge space P is formed of the frame spacing member 3 which consists of ceramics, such as forsterite, as well as the inferior lamella member 2 which consists of ceramics with which this flat-surface mold fluorescent lamp consists of soft glass, such as the superior lamella member 1 and forsterite, and the fluorescent substance is applied to the inner surface of the superior lamella member 1 and the inferior lamella member 2. In addition, the inferior lamella member 2 and the frame spacing member 3 are beforehand formed in one, and are carrying out the flat core box. And it counters in this flat discharge space P, the anode plate 4 and cathode 5 of a couple are arranged, and it connects with leads 41 and 51. In addition, in this conventional example, as shown in drawing 7 , the anode plate 4 and the lead 41 are formed in one. Although drawing 7 shows only the anode plate, it is structure with the same said of cathode. These leads 41 and 51 are airtightly fixed together, when carrying out the seal of the superior lamella member 1 and the frame spacing member 3 with low melting glass 8. 6 is the exhaust pipe remainder of the exhaust pipe used when enclosing exhaust air of the flat discharge space P, and the rare gas to the flat discharge space P. the inside of this sealed flat discharge space P -- rare gas and mercury -- or By enclosing only rare gas and carrying out discharge by the RF with the whole electrode surface between the anode plate 4 of a couple, and cathode 5 The ultraviolet rays which ultraviolet rays and rare gas which mercury vapour is excited and occur are excited, and are generated are changed into the light with the fluorescent substance applied to the inner surface of the inferior lamella member 2, and the inner surface of the superior lamella member 1, and are emitted outside as a flat-surface light.
[0004] In the anode plate 4 and cathode 5 of a couple, nonconformities, such as lowering of brightness, degradation of the starting characteristic, and generating of a flicker, arise according to causes, such as scattering of the oxide of an electrode surface, an impurity, etc., bleedoff of the impure gas which occurs from the interior of an electrode, and migration of the discharge location by the dry area of an electrode surface. For the object which prevents such nonconformity, processing of the reduction processing by cleaning washing processing, surface polish processing, hydrogen, etc., elevated-temperature gas broth processing in a vacuum, etc. is fully made as assembly pretreatment of an electrode, an electrode surface is smooth, there is neither oxidation nor dirt, and sufficient consideration is made so that the impure gas inside an electrode may also decrease as much as possible.

[Translation done.]

EFFECT OF THE INVENTION

[Effect of the Invention] Since the height is formed in the front face of cathode and the anode plate which counters, the flat-surface mold fluorescent lamp of this invention can maintain the stable discharge condition that migration of the discharge location on an anode plate does not take place. Furthermore, since the height is controllable in the location of arbitration, brightness regularity can be raised. moreover, the thing which the anode plate front face including the front face of a height has oxidized -- or by carrying out insulating processing of the anode plate front face except the head of a height, further further, migration of the discharge location on an anode plate will not take place, and discharge can maintain in the stable condition. Consequently, the incidence rate of a flicker can decrease remarkably and brightness regularity can consider as a good flat-surface mold fluorescent lamp.

[Translation done.]

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, in spite of performing processing mentioned above in an anode plate and cathode so that it may discharge from the long and slender whole electrode surface, the phenomenon in which the location which discharges according to an electrode surface condition moves in an electrode surface top occurs. Especially this phenomenon is hardly seen in the cathode surface which emits an electron, but appears notably in the anode plate front face which is the side which receives an electron. Consequently, a flicker occurred in the emitted light, and when brightness regularity was bad and used this flat-surface mold fluorescent lamp as a back light of a liquid crystal display, there was a problem that a flicker and brightness of a screen were not uniform.
[0006] what was made in order that this invention might solve the above troubles -- it is -- that object -- a flicker -- not generating -- in addition -- and it is in offering a flat-surface mold fluorescent lamp with the uniform brightness of the light emitted at a flat surface.

[Translation done.]

MEANS

[Means for Solving the Problem]
[Means 1] The flat-surface mold fluorescent lamp of this invention is a superior lamella member, an inferior lamella member, and a frame spacing member. The sealed flat discharge space is formed, opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and it is characterized by forming the height in the front face of said cathode and said anode plate which counters in the flat-surface mold fluorescent lamp with which it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member.
[Means 2] The flat-surface mold fluorescent lamp of this invention is a superior lamella member, an inferior lamella member, and a frame spacing member. The sealed flat discharge space is formed, opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, a height is formed in the front face of said cathode and said anode plate which counters in the flat-surface mold fluorescent lamp with which it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member, and it is characterized by the front face of said anode plate including the front face of this height having oxidized.
[Means 3] The flat-surface mold fluorescent lamp of this invention is a superior lamella member, an inferior lamella member, and a frame spacing member. In the flat-surface mold fluorescent lamp with which the sealed flat discharge space is formed, opposite arrangement of the long and slender anode plate and the cathode of a couple is carried out into this flat discharge space, and it comes to apply a fluorescent substance to the inner surface of this superior lamella member and an inferior lamella member A height is formed in the front face of said cathode and said anode plate which counters, and it is characterized by carrying out insulating processing of the front face of said anode plates other than the discharge part which contributes to discharge of this height.

[Translation done.]

EXAMPLE

[Example] Hereafter, this invention is explained to a detail based on a drawing. Drawing 1 is the perspective view which looked at the flat-surface fluorescent lamp of this invention from the superior lamella member side. In addition, the fluorescent substance applied to the inner surface of a superior lamella member so that flat discharge space, an anode plate, and cathode may appear is omitted. Drawing 2 shows the X-X sectional view of drawing 1 . Seven show a fluorescent substance among drawing. The lead with which an anode plate and 41A were connected to anode plate 4A for 4A, and S show the height formed in the front face of anode plate 4A which counters cathode 5, respectively. In addition, the same sign as drawing 6 shows the same part. A dimension is 23mmx20mmx4.7mm and the power consumption of this flat-surface mold fluorescent lamp is 0.6W. in addition, as shown in drawing 1 , in this example, anode plate 4A and lead 41A are formed in one -- it does not need to be formed in one. It mentions later for details.
[0010] Drawing 3 is the perspective view which took out only the anode plate of the flat-surface mold fluorescent lamp of this invention. Anode plate 4A and lead 41A are formed in one, and construction material consists of a Fe-nickel-Cr system alloy. And anode plate 4A is tabular [with width of face of 1.5mm, a die length / of 11mm /, and a thickness of 0.2mm]. Moreover, lead 41A is band-like [with a width of face / of 1.0mm /, and a thickness of 0.2mm], and is formed in anode plate 4A and one. In addition, an anode plate and a lead are really formed, when ****, a lead consists of a Fe-nickel-Cr system alloy mentioned above, and an anode plate joins an anode plate and a lead by spot welding etc. using refractory metals, such as Ta, Mo, nickel, SUS, and Fe. S is a conic height according to molding to the front face of anode plate 4A which counters cathode 5. In this example, five heights S are formed in the front face of anode plate 4A, and it is ********. In addition, what is necessary is just to arrange one or more pieces in a fitness location according to change of luminance distribution about the number and formation location of a projection.
[0011] Drawing 4 is the explanatory view of the modification of the height formed in the anode plate. As shown in drawing 4 (b) (b), irregularity is given to the end face of anode plate 4A which counters cathode 5, and it is considering as the height S1. Moreover, they are welding or wax ********** to the front face of anode plate 4A on which a height S2 counters cathode 5 as shown in drawing 4 (Ha). Furthermore, as shown in drawing 4 (d), the height S3 is attached in the front face of anode plate 4A which counters cathode 5 by embedding etc. The configuration of a height is not caught by configurations, such as the shape of the shape of the shape of a cylinder, a globular shape, cylindrical, and a pipe, and a triangular pyramid, and a multiple drill, but should just project. And how that did not break in the non-deer which has a building envelope in this height, and the point of a height has opened is not related. the configuration of the point of a height is merely even -- it is more more effective to be more sharp.
[0012] Drawing 5 shows the Y-Y sectional view of drawing 3 . In addition, anode plate 4A shows among drawing the condition of oxidizing or insulation processing the front face. Anode plate 4A oxidizes the front face, and oxide-film 40a is formed. The oxidation approach is attained by heat-treating electrode 4A by the inside of atmospheric air, oxygen, or the gas containing oxygen, or the humidification hydrogen middle class. In addition, although the part which an anode plate front face oxidizes is the simplest for the approach of oxidizing all anode plate front faces, it may oxidize only the anode plate side face in which only the anode plate front face which counters cathode follows the anode plate front face which counters cathode, and its front face. When an anode plate is a Fe-nickel-Cr system alloy, in high temperature processing in humidification hydrogen, chromium **** oxide-film 40a on an anode plate 4A front face, and it can do the oxide film of precise and firm chrome oxide simply. In this case, as an amount of oxides of the chrome oxide on the front face of an anode plate seen from flicker depressor effect, it is 0.03 mg/cm2. Effectiveness is small below and it is 0.03 mg/cm2. It is 0.5 mg/cm2 above. In the following range, effectiveness is dramatically large. In addition, 0.5 mg/cm2 Although it is dramatically effective above to a flicker, the problem to which dielectric breakdown by that the amount of scattering of an oxide increases and discharge becomes difficult arises. Assembly completion of the flat-surface mold fluorescent lamp is carried out using the anode plate oxidized as mentioned above. In addition, before oxidizing an anode plate, sufficient pretreatment is made, and vacuum elevated-temperature gas broth processing even with after [sufficient] oxidation treatment etc. is performed.

[0013] Although the front face of anode plate 4A of the completed flat-surface mold fluorescent lamp is covered by oxide-film 40a including the front face of Height S, the oxide film of the part which a height front face is struck by the electron and discharges disperses by switching on the light and discharging. The amount in which the oxide of an oxide film disperses at this time is a minute amount, and completely satisfactory about lowering of brightness. In addition, by oxidation treatment, if the oxide on the front face of an anode plate disperses also in a minute amount, when [special] becoming a problem, when there are many amounts of oxidation, grinding etc. may remove an oxide by the chemical approaches, such as mechanical or electrolytic polishing, etc. beforehand.
[0014] As shown in drawing 5 , anode plate 4A carries out insulating processing of except for a part in the front face in the middle of the slant face of a part for the point of Height S, and Height S, and forms insulator layer 40b. The insulating part on the front face of an anode plate insulates all anode plate front faces, or only the anode plate side face following the anode plate front face where only the anode plate front face which counters cathode counters cathode, and its front face may carry out insulating processing. the approach of forming insulator layer 40b -- aluminum 2O3 and SiO2 etc. -- after welding an inorganic substance or an inorganic substance compound by a plasma metal spray etc., applying and calcinating with a nitrocellulose solvent etc. or vapor-depositing a metal on an anode plate front face, it can attain by oxidizing the vacuum evaporationo film etc. In addition, when insulating processing of the whole anode plate surface is carried out including the front face of a height, mechanical or chemical or ** which are removed by electrical treatment, such as external discharge, such as grinding, are good in the insulator layer of the front face of the height made to discharge. [, such as electric-field polish,] Moreover, since the insulator layer is not formed in the discharge part made to discharge when bonnet insulation processing of the part made to discharge before insulating processing is carried out, it is unnecessary in clearance.
[0015] Drawing 8 is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention with which the oxide film was formed in the anode plate, and the conventional flat-surface mold fluorescent lamp. In addition, as for the anode plate used for the flat-surface mold fluorescent lamp of this invention, the height used the thing of five places and nine types [two]. It experimented using the flat-surface mold fluorescent lamp with which only five kinds of following anode plates differ.
** The flat-surface mold fluorescent lamp with which the oxide film is not formed although the height (five places) is formed in the anode plate.
** The flat-surface mold fluorescent lamp in which the oxide film of chromium was formed on all anode plate front faces including the front face of a height (five places).
** The flat-surface mold fluorescent lamp with which the oxide film is not formed although the height (nine places) is formed in the anode plate.
** The flat-surface mold fluorescent lamp in which the oxide film of chromium was formed on all anode plate front faces including the front face of a height (nine places).
** a height forms in an anode plate -- not having -- in addition -- and the flat-surface mold fluorescent lamp with which the oxide film is not formed in the front face.
In addition, since generating of a flicker tends to have taken place so that ambient temperature is high, it was performed by continuation burning within the thermostat set as 70 degrees C which is an activity maximum temperature. Moreover, the flat-surface mold fluorescent lamp has performed burning for 10 minutes in total and ordinary temperature beforehand including the object which removes the oxide film on the front face of a height contributed to discharge. After checking [hour / 6th / of the initial burning] generating of a flicker, the light was put out, after removing the flat-surface mold fluorescent lamp which a flicker generated, burning of 24 hours was performed again, after checking generating of a flicker, the light was put out, and after the experiment approach removed the flat-surface mold fluorescent lamp which a flicker generated, it performed burning of third-time degree 48 hours, and asked for the flicker incidence rate. In addition, it serves as aging for the stability of a lamp property performed in the usual process for initial burning 6 hours.
[0016] By preparing a height in the front face of cathode and the anode plate which counters, and forming an oxide film in an anode plate front face including a height front face, it is at the 6-hour burning time, and the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was able to attain 0% to the flicker incidence rate of the conventional flat-surface mold fluorescent lamp being 12.5% so that more clearly than this experimental data explanatory view. Moreover, only by preparing a height in the front face of cathode and the anode plate which counters, also in the condition that the oxide film is not formed, are at the 6-hour burning time, and although the flicker incidence rate of the conventional flat-surface mold fluorescent lamp is 12.5%, it receives. The flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was very as low as 0.5% and 1.5%, and further, in third-time burning 48 hours, the flicker incidence rate became 0%, and it has checked that sufficient effectiveness showed up.
[0017] Drawing 9 is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention with which the insulator layer was formed in the anode plate, and the conventional

flat-surface mold fluorescent lamp. In addition, as for the anode plate used for the flat-surface mold fluorescent lamp of this invention, the height used the thing of five places and nine types [two]. It experimented using the flat-surface mold fluorescent lamp with which only five kinds of following anode plates differ.
** The flat-surface mold fluorescent lamp with which the insulator layer is not formed although the height (five places) is formed in the anode plate.
** It is aluminum 2O3 to all anode plate front faces other than the point of a height (five places). Flat-surface mold fluorescent lamp in which the insulator layer was formed.
** The flat-surface mold fluorescent lamp with which the insulator layer is not formed although the height (nine places) is formed in the anode plate.
** It is aluminum 2O3 to all anode plate front faces other than the point of a height (nine places). Flat-surface mold fluorescent lamp in which the insulator layer was formed.
** a height forms in an anode plate -- not having -- in addition -- and the flat-surface mold fluorescent lamp with which the insulator layer is not formed in the front face.
In addition, since generating of a flicker tends to have taken place so that ambient temperature is high, it was performed by continuation burning within the thermostat set as 70 degrees C which is an activity maximum temperature. After checking [hour / 6th / of the initial burning] generating of a flicker, the light was put out, after removing the flat-surface mold fluorescent lamp which a flicker generated, burning of 24 hours was performed again, after checking generating of a flicker, the light was put out, and after the experiment approach removed the flat-surface mold fluorescent lamp which a flicker generated, it performed burning of third-time degree 48 hours, and asked for the flicker incidence rate. In addition, it serves as aging for the stability of a lamp property performed in the usual process for initial burning 6 hours.
[0018] By preparing a height in the front face of cathode and the anode plate which counters, and forming an insulator layer in the anode plate front face except the point of a height, it is at the 6-hour burning time, and the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was able to attain 0% to the flicker incidence rate of the conventional flat-surface mold fluorescent lamp being 12.5% so that more clearly than this experimental data explanatory view. Moreover, only by preparing a height in the front face of cathode and the anode plate which counters, an insulator layer is formed, and are at the 6-hour burning time, and also in the condition [****], although the flicker incidence rate of the conventional flat-surface mold fluorescent lamp is 12.5%, it receives. The flicker incidence rate of the flat-surface mold fluorescent lamp of this invention was very as low as 0.5% and 1.5%, and further, in third-time burning 48 hours, the flicker incidence rate became 0%, and it has checked that sufficient effectiveness showed up.
[0019] Drawing 10 is the experimental data explanatory view showing the relation between the brightness regularity in the luminescence side by the arrangement location and number of the heights, and the brightness regularity in the luminescence side of the conventional flat-surface mold lamp in the flat-surface mold fluorescent lamp of only this invention which prepared the height in cathode and the anode plate front face which counters. Drawing 11 is approximate account drawing of the measurement-of-luminance field (Field A - Field I) in a luminescence side. When a luminescence side was equally divided into nine and the brightness of the central field E was made into 100%, the rate of the brightness of each field (the field A except Field E - Field I) was shown in drawing 10 . And when the number of heights is 3-9, after it has arranged in the anode plate center section when the number of the heights formed in cathode and the anode plate front face which counters is one, it has arranged to the ends of an anode plate when the number of heights is two, and having arranged the height of ends, other heights have been arranged so that spacing of each height may become equal.
[0020] With the conventional flat-surface mold fluorescent lamp, as shown in drawing 10 , when the flat-surface mold fluorescent lamp of this invention arranged to homogeneity the projection which is the discharge location of an anode plate, the minimum value of brightness became 83.9% and it has checked that almost uniform brightness was obtained to the minimum value of brightness being 74.2% since the discharge location of an anode plate is uneven.

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective view which saw the flat-surface mold fluorescent lamp of this invention from the superior lamella member side.
[Drawing 2] It is the X-X sectional view of drawing 1 .
[Drawing 3] It is the perspective view which took out only the anode plate in the flat-surface mold fluorescent lamp of this invention.
[Drawing 4] It is the explanatory view of the modification of the height formed in the anode plate of this invention.
[Drawing 5] It is the Y-Y sectional view of drawing 3 .
[Drawing 6] It is the perspective view which saw the conventional flat-surface mold fluorescent lamp from the superior lamella member side.
[Drawing 7] It is the perspective view which took out only the anode plate in the conventional flat-surface mold fluorescent lamp.
[Drawing 8] It is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention by which the anode plate was oxidized, and the conventional flat-surface mold fluorescent lamp.
[Drawing 9] An anode plate is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention by which insulating processing was carried out, and the conventional flat-surface mold fluorescent lamp.
[Drawing 10] In the flat-surface mold fluorescent lamp of only this invention which prepared the height in cathode and the anode plate front face which counters, it is the experimental data explanatory view showing the relation between the brightness regularity in the luminescence side by the arrangement location and number of the heights, and the brightness regularity in the luminescence side of the conventional flat-surface mold lamp.
[Drawing 11] It is approximate account drawing of the measurement-of-luminance field (Field A - Field I) in a luminescence side.
[Description of Notations]
1 Superior Lamella Member
2 Inferior Lamella Member
3 Frame Spacing Member
4A Anode plate
41A Lead
40a Oxide film
40b Insulator layer
5 Cathode
51 Lead
6 Exhaust Pipe Remainder
7 Fluorescent Substance
8 Low Melting Glass
P Flat discharge space
S Height

[Translation done.]

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]
[Drawing 1] It is the perspective view which saw the flat-surface mold fluorescent lamp of this invention from the superior lamella member side.
[Drawing 2] It is the X-X sectional view of drawing 1 .
[Drawing 3] It is the perspective view which took out only the anode plate in the flat-surface mold fluorescent lamp of this invention.
[Drawing 4] It is the explanatory view of the modification of the height formed in the anode plate of this invention.
[Drawing 5] It is the Y-Y sectional view of drawing 3 .
[Drawing 6] It is the perspective view which saw the conventional flat-surface mold fluorescent lamp from the superior lamella member side.
[Drawing 7] It is the perspective view which took out only the anode plate in the conventional flat-surface mold fluorescent lamp.
[Drawing 8] It is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention by which the anode plate was oxidized, and the conventional flat-surface mold fluorescent lamp.
[Drawing 9] An anode plate is the experimental data explanatory view showing the flicker incidence rate of the flat-surface mold fluorescent lamp of this invention by which insulating processing was carried out, and the conventional flat-surface mold fluorescent lamp.
[Drawing 10] In the flat-surface mold fluorescent lamp of only this invention which prepared the height in cathode and the anode plate front face which counters, it is the experimental data explanatory view showing the relation between the brightness regularity in the luminescence side by the arrangement location and number of the heights, and the brightness regularity in the luminescence side of the conventional flat-surface mold lamp.
[Drawing 11] It is approximate account drawing of the measurement-of-luminance field (Field A - Field I) in a luminescence side.
[Description of Notations]
1 Superior Lamella Member
2 Inferior Lamella Member
3 Frame Spacing Member
4A Anode plate
41A Lead
40a Oxide film
40b Insulator layer
5 Cathode
51 Lead
6 Exhaust Pipe Remainder
7 Fluorescent Substance
8 Low Melting Glass
P Flat discharge space
S Height

[Translation done.]

* NOTICES *

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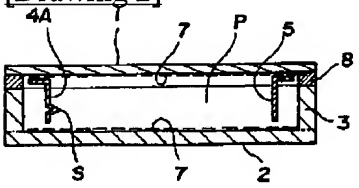
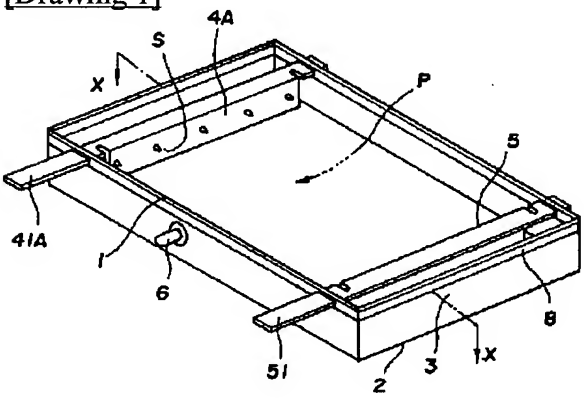
2.**** shows the word which can not be translated.
3.In the drawings, any words are not translated.

DRAWINGS

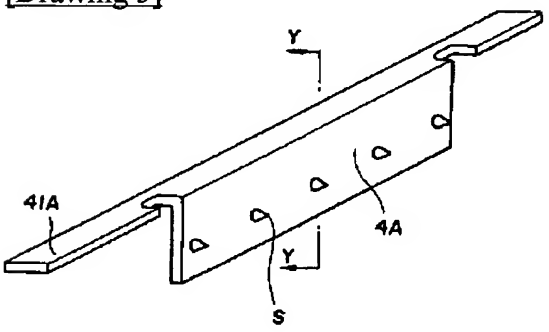
[Drawing 2]



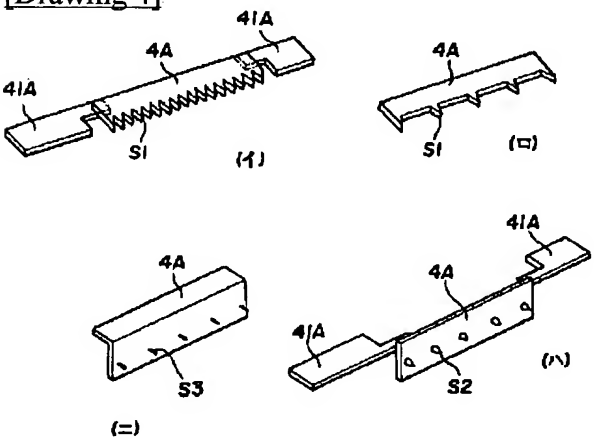
[Drawing 1]



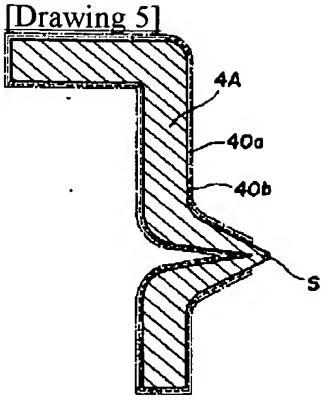
[Drawing 3]



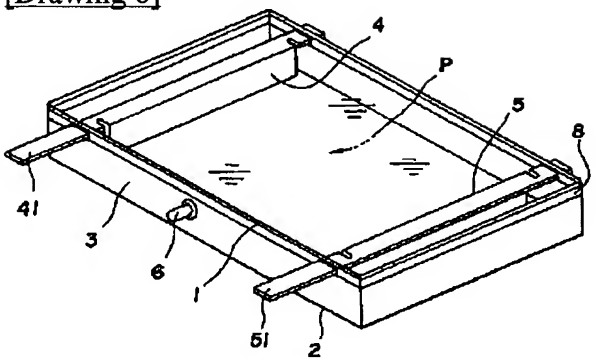
[Drawing 4]



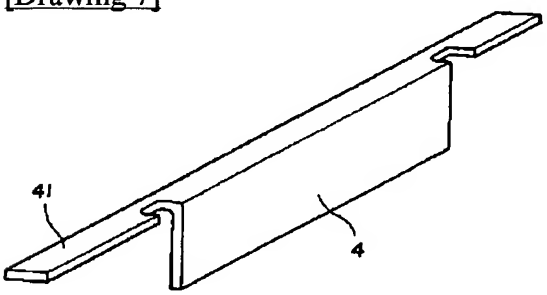
[Drawing 5]



[Drawing 6]



[Drawing 7]



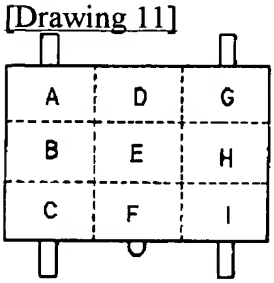
[Drawing 8]

ちらつき発生率

単位 %

陰極個数種類	突起部5ヶ所		突起部9ヶ所		突起部なし
酸化膜形成の有無	無し	有り	無し	有り	無し
点灯後 1時間目	0.5	0	1.0	0	10.0
2	0.5	0	1.5	0	11.0
4	0.5	0	1.5	0	12.0
5	0.5	0	1.5	0	12.0
6	0.5	0	1.5	0	12.5
消灯後再点灯					
再点灯後 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	1.5
24	0	0	0	0	1.5
消灯後再々点灯					
再々点灯 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	0
24	0	0	0	0	0
48	0	0	0	0	0.5

[Drawing 11]



[Drawing 9]

ちらつき発生率　　単位 %

陽極側電極種類	突起部5ヶ所		突起部9ヶ所		突起部なし
絶縁膜形成の有無	無し	有り	無し	有り	無し
点灯後 1時間目	0.5	0	1.0	0	10.0
2	0.5	0	1.5	0	11.0
4	0.5	0	1.5	0	12.0
5	0.5	0	1.5	0	12.0
6	0.5	0	1.5	0	12.5
消灯後再点灯					
再点灯後 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	1.5
24	0	0	0	0	1.5
消灯後再々点灯					
再々点灯 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	0
24	0	0	0	0	0
48	0	0	0	0	0.5

[Drawing 10]

輝度均斉度　　単位 %

突起部の配置	中央	両側	両側及び間を均等配分			突起部なし
場所と数	1個	2個	3個	5個	9個	
領域 A	65.1	85.5	72.3	81.6	85.1	76.5
領域 B	84.5	72.3	79.7	85.5	87.9	82.3
領域 C	59.8	73.8	74.6	79.4	83.9	74.8
領域 D	86.5	103.5	90.3	93.9	96.4	91.5
領域 E	100	100	100	100	100	100
領域 F	78.4	85.1	87.7	90.6	93.3	88.6
領域 G	73.4	85.1	80.6	82.9	85.5	74.2
領域 H	81.0	87.1	86.9	88.0	89.7	85.6
領域 I	66.4	76.8	78.4	78.4	84.2	75.8

[Translation done.]

* NOTICES *

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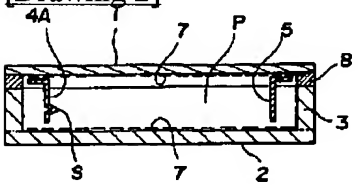
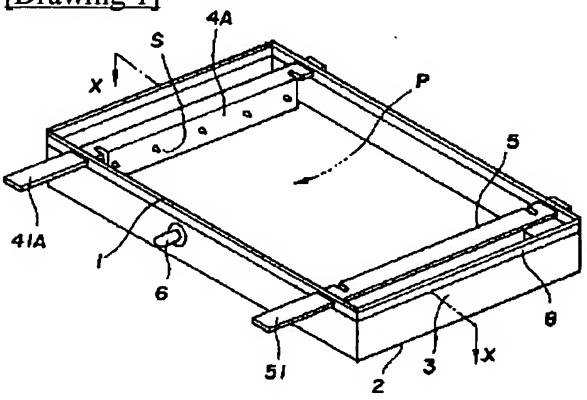
DRAWINGS

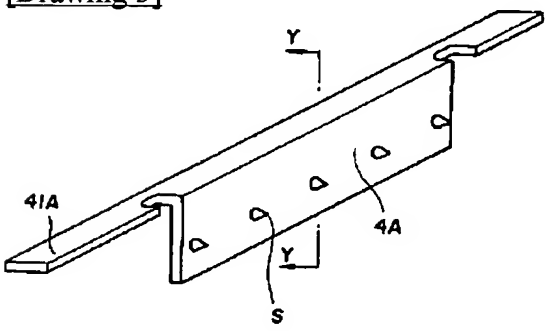
[Drawing 2]



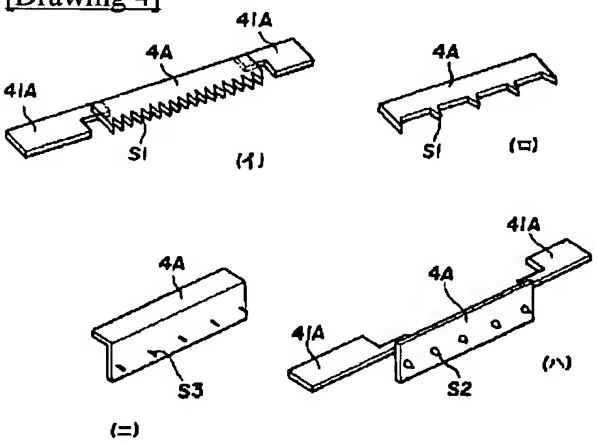
[Drawing 1]



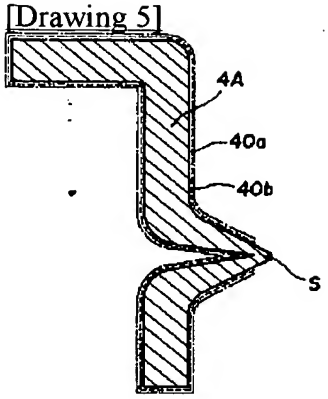
[Drawing 3]



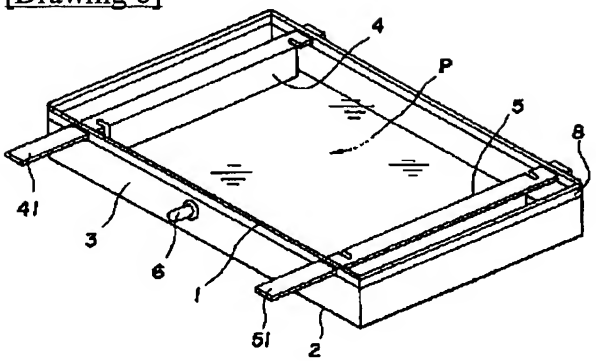
[Drawing 4]



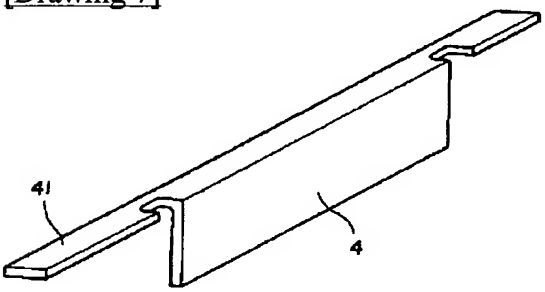
[Drawing 5]



[Drawing 6]



[Drawing 7]



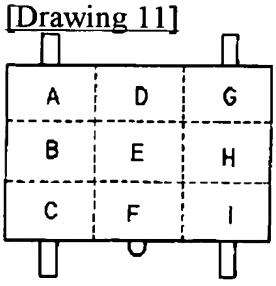
[Drawing 8]

ちらつき発生率

単位 %

陰極側電極種類	突起部5ヶ所		突起部9ヶ所		突起部なし
酸化膜形成の有無	無し	有り	無し	有り	無し
点灯後 1時間目	0.5	0	1.0	0	10.0
2	0.5	0	1.5	0	11.0
4	0.5	0	1.5	0	12.0
5	0.5	0	1.5	0	12.0
6	0.5	0	1.5	0	12.5
消灯後再点灯					
再点灯後 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	1.5
24	0	0	0	0	1.5
消灯後再々点灯					
再々点灯 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	0
24	0	0	0	0	0
48	0	0	0	0	0.5

[Drawing 11]



[Drawing 9]

ちらつき発生率

単位 %

陽極側電極種類	突起部5ヶ所		突起部9ヶ所		突起部なし
絶縁膜形成の有無	無し	有り	無し	有り	無し
点灯後 1時間目	0.5	0	1.0	0	10.0
2	0.5	0	1.5	0	11.0
4	0.5	0	1.5	0	12.0
5	0.5	0	1.5	0	12.0
6	0.5	0	1.5	0	12.5
消灯後再点灯					
再点灯後 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	1.5
24	0	0	0	0	1.5
消灯後再々点灯					
再々点灯 1時間目	0	0	0	0	0
6	0	0	0	0	0
12	0	0	0	0	0
24	0	0	0	0	0
48	0	0	0	0	0.5

[Drawing 10]

輝度均斉度

単位 %

突起部の配置場所と数	中央	両側	両側及び間を均等配分			突起部なし
	1個	2個	3個	5個	9個	
領域 A	65.1	85.5	72.3	81.6	85.1	76.5
領域 B	84.5	72.3	79.7	85.5	87.9	82.3
領域 C	59.8	73.8	74.6	79.4	83.9	74.8
領域 D	86.5	103.5	90.3	93.9	96.4	91.5
領域 E	100	100	100	100	100	100
領域 F	78.4	85.1	87.7	90.6	93.3	88.6
領域 G	73.4	85.1	80.6	82.9	85.5	74.2
領域 H	81.0	87.1	86.9	88.0	89.7	85.6
領域 I	66.4	76.8	78.4	78.4	84.2	75.8

[Translation done.]